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10CFR50.90

NLS2004122
October 25, 2004

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555-0001

Subject: License Amendment Request to Revise the Required Channels Per Trip System for Primary and Secondary Containment Isolation and Control Room Emergency Filter System Instrumentation,
Cooper Nuclear Station, NRC Docket 50-298, DPR-46

The purpose of this letter is for the Nebraska Public Power District (NPPD) to request an amendment to Facility Operating License DPR-46 in accordance with the provisions of 10CFR50.90 to revise the Cooper Nuclear Station (CNS) Technical Specifications (TS). The proposed amendment revises the Required Channels Per Trip System for several instrument functions contained in TS Tables 3.3.6.1-1 (Primary Containment Isolation Instrumentation), 3.3.6.2-1 (Secondary Containment Isolation Instrumentation), and 3.3.7.1-1 (Control Room Emergency Filter System Instrumentation). These proposed changes will achieve conformity with the CNS design bases defining "Instrument Channel" and "Trip System" and are administrative in nature.

Attachment 1 provides a description of the TS change, the basis for the amendment, the no significant hazards consideration evaluation pursuant to 10CFR50.91(a)(1), and the environmental impact evaluation pursuant to 10CFR51.22. Attachment 2 provides the proposed changes to the current CNS TS on marked up pages. Attachment 3 provides the revised TS pages in final typed format. Attachment 4 provides the corresponding changes to the current Bases on marked up pages for your information. Attachment 5 provides composite logic figures that represent the proposed changes. NPPD requests NRC approval of the proposed TS change and issuance of the requested license amendment by October 21, 2005, with a 30-day implementation period.

These proposed TS changes have been reviewed by the necessary safety review committees. Amendments to the CNS Facility Operating License through Amendment 207 issued October 15, 2004, have been incorporated into this request. NPPD has concluded that the proposed changes do not involve a significant hazards consideration and that they satisfy the categorical exclusion criteria of 10CFR51.22(c)(9). This request is submitted under oath pursuant to 10CFR50.30(b).

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By copy of this letter and its attachments, the appropriate State of Nebraska official is notified in accordance with 10CFR50.91(b)(1). Copies to the NRC Region IV office and the CNS Resident Inspector are also being provided in accordance with 10CFR50.4(b)(1).

Should you have any questions concerning this matter, please contact Mr. Paul Fleming at (402) 825-2774.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on 10/25/04
(Date)

Sincerely,

Randall K. Edington

Randall K. Edington
Vice President - Nuclear and
Chief Nuclear Officer

/wrv

Attachments

cc: Regional Administrator w/ attachments
USNRC - Region IV

Senior Project Manager w/ attachments
USNRC - NRR Project Directorate IV-1

Senior Resident Inspector w/ attachments
USNRC

Nebraska Health and Human Services w/ attachments
Department of Regulation and Licensure

NPG Distribution w/o attachments

CNS Records w/ attachments

LICENSE AMENDMENT REQUEST TO REVISE THE REQUIRED CHANNELS PER TRIP SYSTEM FOR PRIMARY AND SECONDARY CONTAINMENT ISOLATION AND CONTROL ROOM EMERGENCY FILTER SYSTEM INSTRUMENTATION

Cooper Nuclear Station, NRC Docket 50-298, DPR-46

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LICENSE AMENDMENT REQUEST TO REVISE THE
REQUIRED CHANNELS PER TRIP SYSTEM FOR
PRIMARY AND SECONDARY CONTAINMENT ISOLATION AND
CONTROL ROOM EMERGENCY FILTER SYSTEM INSTRUMENTATION

1.0 Description

This letter requests an amendment to the Cooper Nuclear Station (CNS) Technical Specifications (TS) to revise the Required Channels Per Trip System for several instrumentation functions described on TS Table 3.3.6.1-1 (Primary Containment Isolation Instrumentation), Table 3.3.6.2-1 (Secondary Containment Isolation Instrumentation), and Table 3.3.7.1-1 (Control Room Emergency Filter System Instrumentation). The changes address inconsistencies with the CNS design bases regarding the definitions of "Instrument Channel" and "Trip System." These inconsistencies were introduced with the conversion to Improved Standard Technical Specifications (ITS) in License Amendment 178 (Tables 3.3.6.1-1 and 3.3.6.2-1) (Reference 7.1), as carried forward in License Amendment 187 (Table 3.3.7.1-1) (Reference 7.2). The revisions are administrative in nature, as they have no impact on facility configuration, operation, or testing.

2.0 Proposed Change

Attachments 2 and 3 describe the proposed changes. These changes revise the number of Required Channels Per Trip System from 4 to 2 for the designated instrumentation functions. Attachment 4 provides the applicable TS Bases changes, which revise the total number of channels from eight to four.

3.0 Background

High Drywell Pressure or Low Reactor Water Level will provide a Group 2 Primary Containment Isolation System (PCIS) signal. A Group 6 PCIS signal is actuated by a Group 2 signal or High Reactor Building Ventilation Exhaust Plenum Radiation signal. These instrumentation functions are reflected in TS Table 3.3.6.1-1, Functions 2.a, b, c, 5.d, 6.b, and Table 3.3.6.2-1, Functions 1, 2, 3. As a result of the ITS conversion, the number of Required Channels Per Trip System was changed from 2 to 4. This change was based on an ITS convention that defined each divisional logic to be one trip system. Since all four instrument channels provided input signals in that divisional/trip system logic, the result was that there be 4 Required Channels Per Trip System. However, the CNS design basis defines each divisional logic as having two trip systems, thus 2 Required Channels Per Trip System. The discussion of changes submitted with the ITS revisions acknowledged the change in practice that was being introduced. However, since then, this has been found to be a confusing inconsistency between the design and licensing basis, and offers no particular advantage in safety or operational flexibility.

License Amendment 187, in part, reflected a modification to the initiating instrumentation to the Control Room Emergency Filter System (CREFS) prescribed in TS Table 3.3.7.1-1. This modification changed CREFS initiation from high radiation in the Control Room Air Conditioning System supply ducting to a Group 6 PCIS actuation. Accordingly, the proposed Technical Specification changes associated with Amendment 187 for Table 3.3.7.1-1 were transcribed from TS Table 3.3.6.2-1 Functions 1, 2, and 3; i.e., Group 6 actuation signals. In this manner, the previously mentioned inconsistency was carried forward to the CREFS required instrumentation.

4.0 Technical Analysis

The following definitions are applicable to the CNS instrumentation design basis:

<u>Instrument Channel</u> – An instrument channel means an arrangement of a sensor and auxiliary equipment required to generate and transmit a signal related to the plant parameter monitored by that instrument channel. A channel terminates and loses its identity where individual channel outputs are combined in logic. (Reference- CNS Updated Safety Analysis Report (USAR), Section I-2.0)

<u>Trip System</u> – A trip system means an arrangement of instrument channel trip signals and auxiliary equipment required to initiate action to accomplish a protective function. A trip system may require one or more instrument channel trip signals related to one or more plant parameters in order to initiate trip system action. Initiation of protective action may require the tripping of a single trip system or the coincident tripping of two trip systems. A trip system terminates and loses its identity where outputs are combined in logic. (Reference- CNS USAR, Section I-2.0)

USAR Section VII-3.3.5 states the following regarding the PCIS logic:

> The basis logic arrangement for important trip functions is one in which an automatic isolation valve is controlled by two trip systems. Where many isolation valves close on the same signal, two trip systems control the entire group. Where just one or two valves must close in response to a special signal, two trip systems may be formed from the instruments provided to sense the special condition. Valves that respond to the signals from common trip systems are identified in the detailed descriptions to isolation functions.
>
> Each trip system has a pair of logics. Each logic receives input signals from at least one channel for each monitored variable. Thus, two channels are required for each important

monitored variable to provide independent inputs to the logic of one trip system. A total of four channels for each important monitored variable are required for the logics of both trip systems.

The actuators associated with a logic pair provide inputs into each of the actuator logics for that trip system. Thus, either of the two logics associated with one trip system can produce a trip system trip. The logic is a 1-out-of-n arrangement, where n may be two or more.

To initiate valve closure the actuator logics of both trip systems must be tripped. The overall logic of the system could be termed one-out-of-two taken twice.

Attachment 5, Figure 1 shows the channels, trip systems, and logic arrangement for a Group 2 PCIS signal. From this figure it can be seen that there are two Trip Systems that input into one trip logic associated with the actuated device, and that each Trip System is composed of two Low Reactor Water Level Channels, and two High Drywell Pressure Channels. Although this logic is replicated for the inboard isolation valve, there is a total of four channels per instrument function (not eight as described in the TS Bases) since there are only four sensors for drywell pressure and reactor water level, respectively.

Attachment 5, Figures 2 and 3 show the channels, trip systems, and logic arrangement for a Group 6 PCIS signal. The arrangement of the Reactor Low Water Level and High Drywell Channels are identical to Figure 1. The Reactor Building Ventilation Exhaust Plenum Radiation High Channels are similarly arranged as two Channels per Trip System with a one-out-of-two taken twice logic.

The changes being proposed do not alter the instrumentation design or their physical configuration, and will not affect their operation or manner of control. No changes to surveillance testing frequency are warranted. This is because: a) there are no changes in the reliability of the instrumentation, and b) the surveillance frequencies for the affected instrumentation functions are the same as for other similar 2 channel per trip system instrumentation functions. Moreover, the number of Required Channels Per Trip System for these Group 2 and 6 PCIS signal instrumentation functions are identical to that contained in NUREG-1433 (Reference 7.3), as are the analogous Surveillance Frequencies.

In summary, these proposed Technical Specification changes are appropriate from a technical standpoint. They achieve conformity with the CNS design bases for instrumentation definition. Since these revisions will have no affect on instrumentation configuration, operation, or testing practices, they are administrative in nature.

5.0 Regulatory Safety Analysis

5.1 No Significant Hazards Consideration

In accordance with 10CFR50.92, a proposed change to the operating facility involves no "significant hazards" if operation of the facility, in accordance with the proposed change, would not 1) involve a significant increase in the probability or consequences of any accident previously evaluated, 2) create the possibility of a new or different kind of accident from any accident previously evaluated, or 3) involve a significant reduction in a margin of safety.

The Nebraska Public Power District (NPPD) has evaluated the no significant hazards consideration in this request for a license amendment and has determined that no significant hazards consideration results from the proposed change. The no significant hazards evaluation follows.

1. Do the proposed changes involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No

   Revising the Required Channels Per Trip System to conform with the Cooper Nuclear Station (CNS) design basis resolves an inconsistency that will not result in any changes to instrumentation configuration, operating practices, or means of testing. Thus, these changes are administrative and have no associated effects on the probability or consequences of previously evaluated accidents.

2. Do the proposed changes create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No

   The proposed changes represent administrative changes to the Technical Specification controls over the affected instrumentation. Thus, the changes will not create new event initiators or alter plant response to postulated plant events.

3. Do the proposed changes involve a significant reduction in the margin of safety?

   Response: No

   The proposed changes have no effect on the manner in which the affected instruments are configured, operated, or tested. Similarly, there is no relaxation in the application of Technical Specifications to inoperable channels. Thus these proposed changes will not result in a significant reduction in the margin of safety.

From the above discussions, NPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10CFR50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

5.2 Applicable Regulatory Requirements/Criteria

The CNS PCIS was designed to be in conformance with the intent of the Draft General Design Criteria (GDCs) related to Protection Systems, published in the Federal Register on July 11, 1967[1]. As previously discussed, the proposed changes are administrative in nature and will have no effect on conformance to the GDCs. The applicable Draft GDCs include:

Draft GDC 15, Engineered Safety Features Protection Systems- "Protection systems shall be provided for sensing accident situations and initiating the operation of necessary engineered safety features."

Draft GDC 19, Protection Systems Reliability- "Protection systems shall be designed for high functional reliability and in-service testability commensurate with the safety functions to be performed."

Draft GDC 20, Protection Systems Redundancy and Independence- "Redundancy and independence designed into protection systems shall be sufficient to assure that no single failure or removal from service of any component or channel of a system will result in loss of the protection function. The redundancy provided shall include, as a minimum, two channels of protection for each protection function to be served. Different principles shall be used where necessary to achieve true independence of redundant instrumentation components."

Draft GDC 22, Separation of Protection and Control Instrumentation Systems- "Protection systems shall be separated from control instrumentation systems to the extent that failure or removal from service of any control instrumentation system component or channel, or of those common to control instrumentation and protection circuitry, leaves intact a system satisfying all requirements for the protection channels."

Draft GDC 23, Protection Against Multiple Disability for Protection Systems- "The effects of adverse conditions to which redundant channels or protection systems might be exposed in common, either under normal conditions or those of an accident, shall not result in loss of the protection function."

1 . One notable exception is that NPPD committed to the analogous 1971 General Design Criteria for the safety-related actuation instrumentation of the Reactor Building Ventilation Radiation Monitoring System.

Draft GDC 25, Demonstration of Functional Operability of Protection Systems- "Means shall be included for testing protection systems while the reactor is in operation to demonstrate that no failure or loss of redundancy has occurred."

Draft GDC 26, Protection Systems Fail-Safe Design- "The protection systems shall be designed to fail into a safe state or into a state established as tolerable on a defined basis if conditions such as disconnection of the system, loss of energy (e.g., electric power, instrument air), or adverse environments (e.g., extreme heat or cold, fire, steam, or water) are experienced."

6.0 Environmental Consideration

10CFR51.22(b) allows that an environmental assessment or an environmental impact statement is not required for any action included in the list of categorical exclusions in 10CFR51.22(c). 10CFR51.22(c)(9) identifies an amendment to an operating license which changes a requirement with respect to installation or use of a surveillance requirement, as a categorical exclusion if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant hazards consideration, (2) result in a significant change in the types or significant increase in the amount of any effluents that may be released off-site, or (3) result in an increase in individual or cumulative occupational radiation exposure. NPPD has reviewed the proposed license amendment and concludes that it meets the eligibility criteria for categorical exclusion set forth in 10CFR51.22(c)(9). Pursuant to 10CFR51.22(c), no environmental impact statement or environmental assessment needs to be prepared in connection with issuance of the proposed license changes. The basis for this determination is as follows:

1. The proposed license amendment does not involve significant hazards as described previously in the No Significant Hazards Consideration Evaluation.

2. This proposed change does not result in a significant change in the types or significant increase in the amounts of any effluents that may be released off-site. The proposed license amendment does not introduce any new equipment, nor does it require any existing equipment or systems to perform a different type of function than they are presently designed to perform. NPPD has concluded that there will not be a significant increase in the types or amounts of any effluents that may be released off-site and these changes do not involve irreversible environmental consequences beyond those already associated with normal operation.

3. This change does not adversely affect plant systems or operation and therefore, does not significantly increase individual or cumulative occupational radiation exposure beyond that already associated with normal operation.

7.0 References

7.1 License Amendment 178, dated July 31, 1998, "Conversion to Improved Technical Specifications for the Cooper Nuclear Station – Amendment No. 178 to Facility Operating License No. DPR-46 (TAC No. M98317)"

7.2 License Amendment 187, dated October 23, 2001, "Cooper Nuclear Station – Issuance of Amendment Regarding Revised Radiological Dose Assessment and Technical Specification Changes (TAC No. MB1419)"

7.3 NUREG-1433, Revision 3, June 2004, "Standard Technical Specifications General Electric Plants, BWR/4"

ATTACHMENT 2

PROPOSED TECHNICAL SPECIFICATIONS
MARKUP FORMAT

COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

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Table 3.3.6.1-1 (page 1 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low (Level 1)	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 835 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 144% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 8 inches Hg vacuum
e. Main Steam Tunnel Temperature - High	1,2,3	2 per location	D	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low (Level 3)	1,2,3	~~4~~2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 3 inches
b. Drywell Pressure - High	1,2,3	~~4~~2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 1.84 psig
c. Reactor Building Ventilation Exhaust Plenum Radiation-High	1,2,3	~~4~~2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 49 mR/hr
d. Main Steam Line Radiation - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 3 times full power background
e. Reactor Vessel Water Level -Low Low Low (Level 1)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ -113 inches

(continued)

(a) With any turbine stop valve not closed.

Table 3.3.6.1-1 (page 2 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 250% rated steam flow
b. HPCI Steam Line Flow-Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 6 seconds
c. HPCI Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 107 psig
d. HPCI Steam Line Space Temperature - High	1,2,3	2 per location	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 288% rated steam flow
b. RCIC Steam Line Flow-Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 6 seconds
c. RCIC Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 61 psig
d. RCIC Steam Line Space Temperature - High	1,2,3	2 per location	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 191% of Rated
b. RWCU System Space Temperature - High	1,2,3	2 per location	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
c. SLC System Initiation	1,2	1	H	SR 3.3.6.1.6	NA
d. Reactor Vessel Water Level - Low (Level 3)	1,2,3	~~1~~2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 3 inches

(continued)

Table 3.3.6.1-1 (page 3 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. RHR Shutdown Cooling System Isolation					
a. Reactor Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 72 psig
b. Reactor Vessel Water Level - Low (Level 3)	3,4,5	~~1~~ 2(b)	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 3 inches

(b) Only one trip system is required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low (Level 3)	1,2,3, (a)	~~1~~2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≥ 3 inches
2. Drywell Pressure - High	1,2,3	~~1~~2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 1.84 psig
3. Reactor Building Ventilation Exhaust Plenum Radiation - High	1,2,3, (a),(b)	~~1~~2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	≤ 49 mR/hr

(a) During operations with a potential for draining the reactor vessel.

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in secondary containment.

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Filter System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low (Level 3)	1,2,3, (a)	~~4~~2	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≥ 3 inches
2. Drywell Pressure - High	1,2,3	~~4~~2	SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 1.84 psig
3. Reactor Building Ventilation Exhaust Plenum Radiation - High	1,2,3, (a),(b)	~~4~~2	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 49 mR/hr

(a) During operations with a potential for draining the reactor vessel.

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in the secondary containment.

ATTACHMENT 3

PROPOSED TECHNICAL SPECIFICATIONS
FINAL TYPED FORMAT

COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

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Table 3.3.6.1-1 (page 1 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Main Steam Line Isolation					
a. Reactor Vessel Water Level - Low Low Low (Level 1)	1,2,3	2	D	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ -113 inches
b. Main Steam Line Pressure - Low	1	2	E	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 835 psig
c. Main Steam Line Flow - High	1,2,3	2 per MSL	D	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 144% rated steam flow
d. Condenser Vacuum - Low	1, 2(a), 3(a)	2	D	SR 3.3.6.1.2 SR 3.3.6.1.3 SR 3.3.6.1.6	≥ 8 inches Hg vacuum
e. Main Steam Tunnel Temperature - High	1,2,3	2 per location	D	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
2. Primary Containment Isolation					
a. Reactor Vessel Water Level - Low (Level 3)	1,2,3	2	G	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 3 inches
b. Drywell Pressure - High	1,2,3	2	G	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 1.84 psig
c. Reactor Building Ventilation Exhaust Plenum Radiation-High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 49 mR/hr
d. Main Steam Line Radiation - High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.6	≤ 3 times full power background
e. Reactor Vessel Water Level -Low Low Low (Level 1)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ -113 inches

(continued)

(a) With any turbine stop valve not closed.

Table 3.3.6.1-1 (page 2 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
3. High Pressure Coolant Injection (HPCI) System Isolation					
a. HPCI Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 250% rated steam flow
b. HPCI Steam Line Flow-Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 6 seconds
c. HPCI Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 107 psig
d. HPCI Steam Line Space Temperature - High	1,2,3	2 per location	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
4. Reactor Core Isolation Cooling (RCIC) System Isolation					
a. RCIC Steam Line Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 288% rated steam flow
b. RCIC Steam Line Flow-Time Delay Relays	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 6 seconds
c. RCIC Steam Supply Line Pressure - Low	1,2,3	2	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 61 psig
d. RCIC Steam Line Space Temperature - High	1,2,3	2 per location	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Flow - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 191% of Rated
b. RWCU System Space Temperature - High	1,2,3	2 per location	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 195°F
c. SLC System Initiation	1,2	1	H	SR 3.3.6.1.6	NA
d. Reactor Vessel Water Level - Low (Level 3)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 3 inches

(continued)

Table 3.3.6.1-1 (page 3 of 3)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
6. RHR Shutdown Cooling System Isolation					
a. Reactor Pressure - High	1,2,3	1	F	SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≤ 72 psig
b. Reactor Vessel Water Level - Low (Level 3)	3,4,5	2(b)	I	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.6	≥ 3 inches

(b) Only one trip system is required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.

Table 3.3.6.2-1 (page 1 of 1)
Secondary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low (Level 3)	1,2,3, (a)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	$\geq$ 3 inches
2. Drywell Pressure - High	1,2,3	2	SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	$\leq$ 1.84 psig
3. Reactor Building Ventilation Exhaust Plenum Radiation - High	1,2,3, (a),(b)	2	SR 3.3.6.2.1 SR 3.3.6.2.2 SR 3.3.6.2.3 SR 3.3.6.2.4	$\leq$ 49 mR/hr

(a) During operations with a potential for draining the reactor vessel.

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in secondary containment.

Table 3.3.7.1-1 (page 1 of 1)
Control Room Emergency Filter System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Reactor Vessel Water Level - Low (Level 3)	1,2,3, (a)	2	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≥ 3 inches
2. Drywell Pressure - High	1,2,3	2	SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 1.84 psig
3. Reactor Building Ventilation Exhaust Plenum Radiation - High	1,2,3, (a),(b)	2	SR 3.3.7.1.1 SR 3.3.7.1.2 SR 3.3.7.1.3 SR 3.3.7.1.4	≤ 49 mR/hr

(a) During operations with a potential for draining the reactor vessel.

(b) During CORE ALTERATIONS and during movement of irradiated fuel assemblies in the secondary containment.

ATTACHMENT 4

PROPOSED TECHNICAL SPECIFICATIONS BASES REVISIONS
MARKUP FORMAT

COOPER NUCLEAR STATION
NRC DOCKET 50-298, LICENSE DPR-46

Listing of Revised Pages

<u>TS Bases Pages</u>

B 3.3-138
B 3.3-142
B 3.3-148
B 3.3-149
B 3.3-156
B 3.3-157
B 3.3-170
B 3.3-171
B 3.3-187
B 3.3-188

Note: TS Bases pages are provided for information. Following approval of the proposed TS change, Bases changes will be implemented in accordance with TS 5.5.10, "Technical Specification (TS) Bases Control Program."

BASES

BACKGROUND (continued)

1. Main Steam Line Isolation

Most MSL Isolation Functions receive inputs from four channels. The outputs from these channels are combined in a one-out-of-two taken twice logic to initiate isolation of the Group I isolation valves (MSIVs and MSL drains). To initiate a Group I isolation valve closure, both trip systems must be tripped.

The exceptions to this arrangement are the Main Steam Line Flow—High Function and Main Steam Tunnel Temperature-High Functions. The Main Steam Line Flow—High Function uses 16 flow channels, four for each steam line. One channel from each steam line inputs to one of the four trip strings. Two trip strings make up each trip system and both trip systems must trip to cause an MSL isolation. Each trip string has four inputs (one per MSL), any one of which will trip the trip string. The trip strings are arranged in a one-out-of-two taken twice logic. This is effectively a one-out-of-eight taken twice logic arrangement to initiate a Group I isolation.

The Main Steam Tunnel Temperature-High Function receives input from 16 temperature switches located in the steam tunnel. These switches are physically located along and in the vicinity of the steam lines in groups of eight (8). There are two locations in the steam tunnel (upper/east and lower/west). For each location, four of the eight switches input into trip system A, the other four into trip system B. The four switches per location are electrically connected in series with switches in other locations and with normally energized trip relays. Any one switch tripping in its trip system plus any one switch tripping in the other trip system will result in isolation of the MSIVs and MSL drains. For purposes of this specification, each temperature switch is considered a "channel".

2. Primary Containment Isolation

Most Primary Containment Isolation Functions receive inputs from ~~eight~~ four channels. The outputs from these channels are

BACKGROUND

5. Reactor Water Cleanup System Isolation (continued)

SLC Pump B control switch to "Start" will isolate the RWCU outboard isolation valve.

6. Shutdown Cooling System Isolation

The Reactor Vessel Water Level—Low (Level 3) Function receives input from ~~eight~~ four reactor vessel water level channels. The outputs from the reactor vessel water level channels are connected to two one-out-of-two taken twice trip systems. Each of the two trip systems is connected to one of the two valves on the RHR shutdown cooling pump suction penetration and one of the two inboard LPCI injection valves if in the shutdown cooling mode. The Reactor Vessel Pressure—High Function receives input from two channels, with each channel in one trip system using a one-out-of-one logic. Each of the two trip systems is connected to one of the two valves on the RHR shutdown cooling pump suction penetration.

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The isolation signals generated by the primary containment isolation instrumentation are implicitly assumed in the safety analyses of Reference 2 to initiate closure of valves to limit offsite doses. Refer to LCO 3.6.1.3, "Primary Containment Isolation Valves (PCIVs)," Applicable Safety Analyses Bases for more detail of the safety analyses.

Primary containment isolation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii) (Ref. 3). Certain instrumentation Functions are retained for other reasons and are described below in the individual Functions discussion.

The OPERABILITY of the primary containment instrumentation is dependent on the OPERABILITY of the individual instrumentation channel Functions specified in Table 3.3.6.1-1. Each Function must have a required number

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Primary Containment Isolation

2.a. Reactor Vessel Water Level - Low (Level 3)

Low RPV water level indicates that the capability to cool the fuel may be threatened. The valves whose penetrations communicate with the primary containment are isolated to limit the release of fission products. The isolation of the primary containment on Level 3 supports actions to ensure that offsite dose limits of 10 CFR 100 are not exceeded. The Reactor Vessel Water Level — Low (Level 3) Function associated with isolation is implicitly assumed in the USAR analysis as these leakage paths are assumed to be isolated post LOCA.

Reactor Vessel Water Level — Low (Level 3) signals are initiated from four vessel level instrument switches that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. ~~Eight~~ Four channels of Reactor Vessel Water Level — Low (Level 3) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level — Low (Level 3) Allowable Value was chosen to be the same as the RPS Level 3 scram Allowable Value (LCO 3.3.1.1), since isolation of these valves is not critical to orderly plant shutdown.

This Function isolates the Group 2, 3, and 6 valves listed in Reference 1.

2.b. Drywell Pressure - High

High drywell pressure can indicate a break in the RCPB inside the primary containment. The isolation of some of the primary containment isolation valves on high drywell pressure supports actions to ensure that offsite dose limits of 10 CFR 100 are not exceeded. The Drywell Pressure — High Function, associated with isolation of the primary containment, is implicitly assumed in the USAR accident analysis as these leakage paths are assumed to be isolated post LOCA.

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY (continued)

2.b. Drywell Pressure - High (continued)

High drywell pressure signals are initiated from four pressure switches that sense the pressure in the drywell. ~~Eight~~ Four channels of Drywell Pressure—High are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Value was selected to be the same as the ECCS Drywell Pressure—High Allowable Value (LCO 3.3.5.1), since this may be indicative of a LOCA inside primary containment.

This Function isolates the Group 2 and 6 valves listed in Reference 1.

2.c. Reactor Building Ventilation Exhaust Plenum Radiation - High

High secondary containment exhaust radiation is an indication of possible gross failure of the fuel cladding. The release may have originated from the primary containment due to a break in the RCPB. When Reactor Building Exhaust Plenum Radiation—High is detected, primary containment vent and purge valves are isolated to limit the release of fission products.

The Reactor Building Exhaust Plenum Radiation—High signals are initiated from radiation detectors that are located such that they can monitor the flow of gas through the reactor building plenum. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel. Four channels of Reactor Building Exhaust Plenum Radiation—High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable Values are chosen to promptly detect gross failure of the fuel cladding.

These Functions isolate the Group 6 valves listed in Reference 1.

APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILTY

5.d Reactor Vessel Water Level - Low (Level 3) (continued)

peak cladding temperature remains below the limits of 10 CFR 50.46. The Reactor Vessel Water Level — Low (Level 3) Function associated with RWCU isolation is not directly assumed in the USAR safety analyses because the RWCU System line break is bounded by breaks of larger systems (recirculation and MSL breaks are more limiting).

Reactor Vessel Water Level — Low (Level 3) signals are initiated from four level switches that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. ~~Eight~~ Four channels of Reactor Vessel Water Level — Low (Level 3) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level — Low (Level 3) Allowable Value was chosen to be the same as the ECCS Reactor Vessel Water Level — Low (Level 3) Allowable Value (LCO 3.3.5.1), since the capability to cool the fuel may be threatened.

This Function isolates the Group 3 valves, as listed in Reference 1.

Shutdown Cooling System Isolation

6.a. Reactor Pressure - High

The Reactor Pressure — High Function is provided to isolate the shutdown cooling portion of the Residual Heat Removal (RHR) System. This Function is provided only for equipment protection to prevent an intersystem LOCA scenario, and credit for the interlock is not assumed in the accident or transient analysis in the USAR.

The Reactor Pressure — High signals are initiated from two pressure switches that are connected to different taps on a recirculation pump suction line. Two channels of Reactor Pressure — High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. The Function is only required to be OPERABLE in MODES 1, 2, and 3, since these

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

6.a. Reactor Pressure - High (continued)

are the only MODES in which the reactor can be pressurized; thus, equipment protection is needed. The Allowable Value was chosen to be low enough to protect the system equipment from overpressurization.

This Function isolates both RHR shutdown cooling pump suction valves.

6.b. Reactor Vessel Water Level - Low (Level 3)

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some reactor vessel interfaces occurs to begin isolating the potential sources of a break. The Reactor Vessel Water Level — Low (Level 3) Function associated with RHR Shutdown Cooling System isolation is not directly assumed in safety analyses because a break of the RHR Shutdown Cooling System is bounded by breaks of the recirculation and MSL. The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below fuel zone zero during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

Reactor Vessel Water Level — Low (Level 3) signals are initiated from four level switches that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. ~~Eight~~ Four channels (four channels per trip system) of the Reactor Vessel Water Level — Low (Level 3) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. As noted (footnote (b) to Table 3.3.6.1-1), only one trip system of the Reactor Vessel Water Level — Low (Level 3) Function is required to be OPERABLE in MODES 4 and 5, provided the RHR Shutdown Cooling System integrity is maintained. System integrity is maintained provided the piping is intact and no maintenance is being performed that has the potential for draining the reactor vessel through the system.

The Reactor Vessel Water Level — Low (Level 3) Allowable Value was chosen to be the same as the RPS Reactor Vessel

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Reactor Vessel Water Level-Low (Level 3) (continued)

(reference leg) and the pressure due to the actual water level (variable leg) in the vessel. ~~Eight~~ Four channels of Reactor Vessel Water Level—Low (Level 3) Function are available and are required to be OPERABLE in MODES 1, 2, and 3 to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level—Low (Level 3) Allowable Value was chosen to be the same as the RPS Level scram Allowable Value (LCO 3.3.1.1) to enable initiation of isolation at the earliest indication of a breach in the nuclear system process barrier, yet far enough below normal operational levels to avoid spurious isolation.

The Reactor Vessel Water Level—Low (Level 3) Function is required to be OPERABLE in MODES 1, 2, and 3 where considerable energy exists in the Reactor Coolant System (RCS); thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. In MODES 4 and 5, the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these MODES; thus, this Function is not required. In addition, the Function is also required to be OPERABLE during operations with a potential for draining the reactor vessel (OPDRVs) because the capability of isolating potential sources of leakage must be provided to ensure that offsite dose limits are not exceeded if core damage occurs.

2. Drywell Pressure-High

High drywell pressure can indicate a break in the reactor coolant pressure boundary (RCPB). An isolation of the secondary containment and actuation of the SGT System are initiated in order to minimize the potential of an offsite dose release. The isolation on high drywell pressure supports actions to ensure that any offsite releases are within the limits calculated in the safety analysis. The Drywell Pressure—High Function associated with isolation is not assumed in any USAR accident or transient analyses, but will provide an isolation and initiation signal. It is retained for the overall redundancy and diversity of the secondary containment isolation instrumentation as required by the NRC approved licensing basis.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2. Drywell Pressure-High (continued)

High drywell pressure signals are initiated from pressure switches that sense the pressure in the drywell. ~~Eight~~ Four channels of Drywell Pressure — High Functions are available and are required to be OPERABLE to ensure that no single instrument failure can preclude performance of the isolation function.

The Allowable Value was chosen to be the same as the ECCS Drywell Pressure — High Function Allowable Value (LCO 3.3.5.1) since this is indicative of a loss of coolant accident (LOCA).

The Drywell Pressure — High Function is required to be OPERABLE in MODES 1, 2, and 3 where considerable energy exists in the RCS; thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. This Function is not required in MODES 4 and 5 because the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these MODES.

3. Reactor Building Ventilation Exhaust Plenum Radiation - High

High secondary containment exhaust radiation is an indication of possible gross failure of the fuel cladding. The release may have originated from the primary containment due to a break in the RCPB or the refueling floor due to a fuel handling accident during refueling. When Reactor Building Exhaust Plenum Radiation — High is detected, secondary containment isolation and actuation of the SGT System are initiated to limit the release of fission products as assumed in the USAR safety analyses (Ref. 4).

The Reactor Building Exhaust Plenum Radiation — High signals are initiated from four radiation detectors that are located such that they can monitor the radioactivity of gas flowing through the reactor building exhaust plenum. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel in each trip system. Four channels of Reactor Building Ventilation Exhaust Plenum Radiation — High Function are available and are required to be OPERABLE to ensure that no single

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

1. Reactor Vessel Water Level — Low (Level 3)

Low reactor pressure vessel (RPV) water level indicates that the capability of cooling the fuel may be threatened. A low reactor vessel water level could indicate a LOCA and will automatically initiate the CREF System, since this could be a precursor to a potential radiation release and subsequent radiation exposure to control room personnel.

Reactor Vessel Water Level — Low (Level 3) signals are initiated from level switches that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. ~~Eight~~ Four channels of Reactor Vessel Water Level — Low (Level 3) Function are available and are required to be OPERABLE in MODES 1, 2, and 3 to ensure that no single instrument failure can preclude CREF System initiation.

The Reactor Vessel Water Level — Low (Level 3) Allowable Value was chosen to be the same as the RPS Level scram Allowable Value (LCO 3.3.1.1) to enable initiation of the CREF System at the earliest indication of a breach in the nuclear system process barrier, yet far enough below normal operational levels to avoid spurious initiation.

The Reactor Vessel Water Level — Low (Level 3) Function is required to be OPERABLE in MODES 1, 2, and 3, and during operations with a potential for draining the reactor vessel (OPDRVs) to ensure that the Control Room personnel are protected during a LOCA. In MODES 4 and 5 at times other than OPDRVs, the probability of a vessel draindown event resulting in the release of radioactive material to the environment is minimal. Therefore, this Function is not required in other MODES and specified conditions.

2. Drywell Pressure — High

High drywell pressure can indicate a break in the reactor coolant pressure boundary. A high drywell pressure signal could indicate a LOCA and will automatically initiate the CREF System, since this could be a precursor to a potential radiation release and subsequent radiation exposure to control room personnel.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

2. Drywell Pressure — High (continued)

Drywell Pressure — High signals are initiated from pressure switches that sense drywell pressure. ~~Eight~~ Four channels of Drywell Pressure — High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude performance of the initiation function. The Drywell Pressure — High Allowable Value was chosen to be the same as the ECCS Drywell Pressure — High Function Allowable Value (LCO 3.3.5.1).

The Drywell Pressure — High Function is required to be OPERABLE in MODES 1, 2, and 3 to ensure that control room personnel are protected in the event of a LOCA. In MODES 4 and 5, the Drywell Pressure — High Function is not required since there is insufficient energy in the reactor to pressurize the drywell to the Drywell Pressure — High setpoint.

3. Reactor Building Ventilation Exhaust Plenum Radiation — High

High radiation in the refueling floor area could be the result of a fuel handling accident. A refueling floor high radiation signal will automatically initiate the CREF System, since this radiation release could result in radiation exposure to control room personnel.

The Reactor Building Exhaust Plenum Radiation — High signals are initiated from radiation detectors that are located such that they can monitor the radioactivity of gas flowing through the reactor building exhaust plenum. The signal from each detector is input to an individual monitor whose trip outputs are assigned to an isolation channel in each trip system. Four channels of Reactor Building Ventilation Exhaust Plenum Radiation — High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the CREF System initiation. The Allowable Value was chosen to promptly detect gross failure of the fuel cladding.

PCIS GROUP 2 AND 6 INSTRUMENTATION CONFIGURATION FIGURES

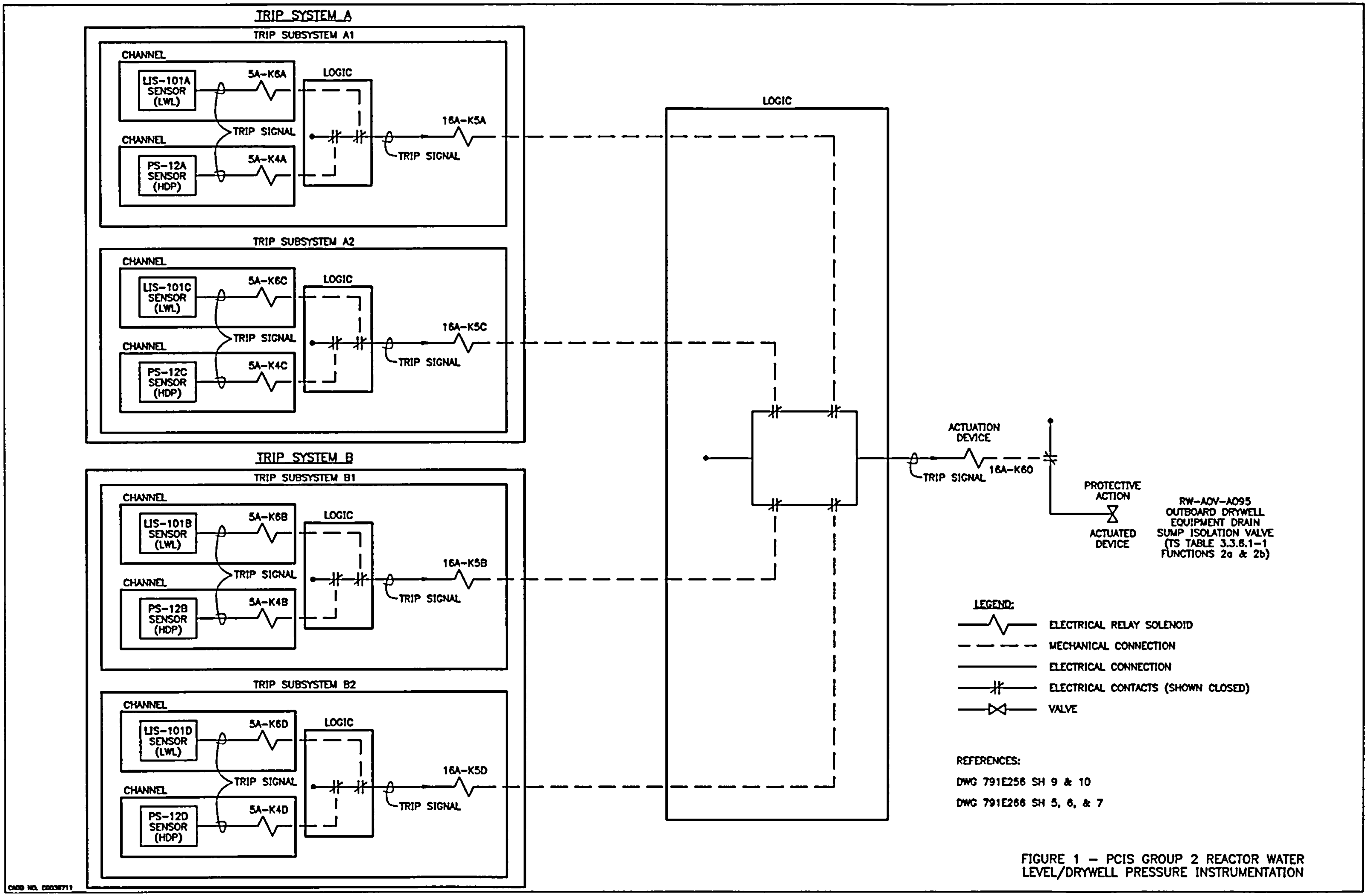


FIGURE 1 – PCIS GROUP 2 REACTOR WATER LEVEL/DRYWELL PRESSURE INSTRUMENTATION

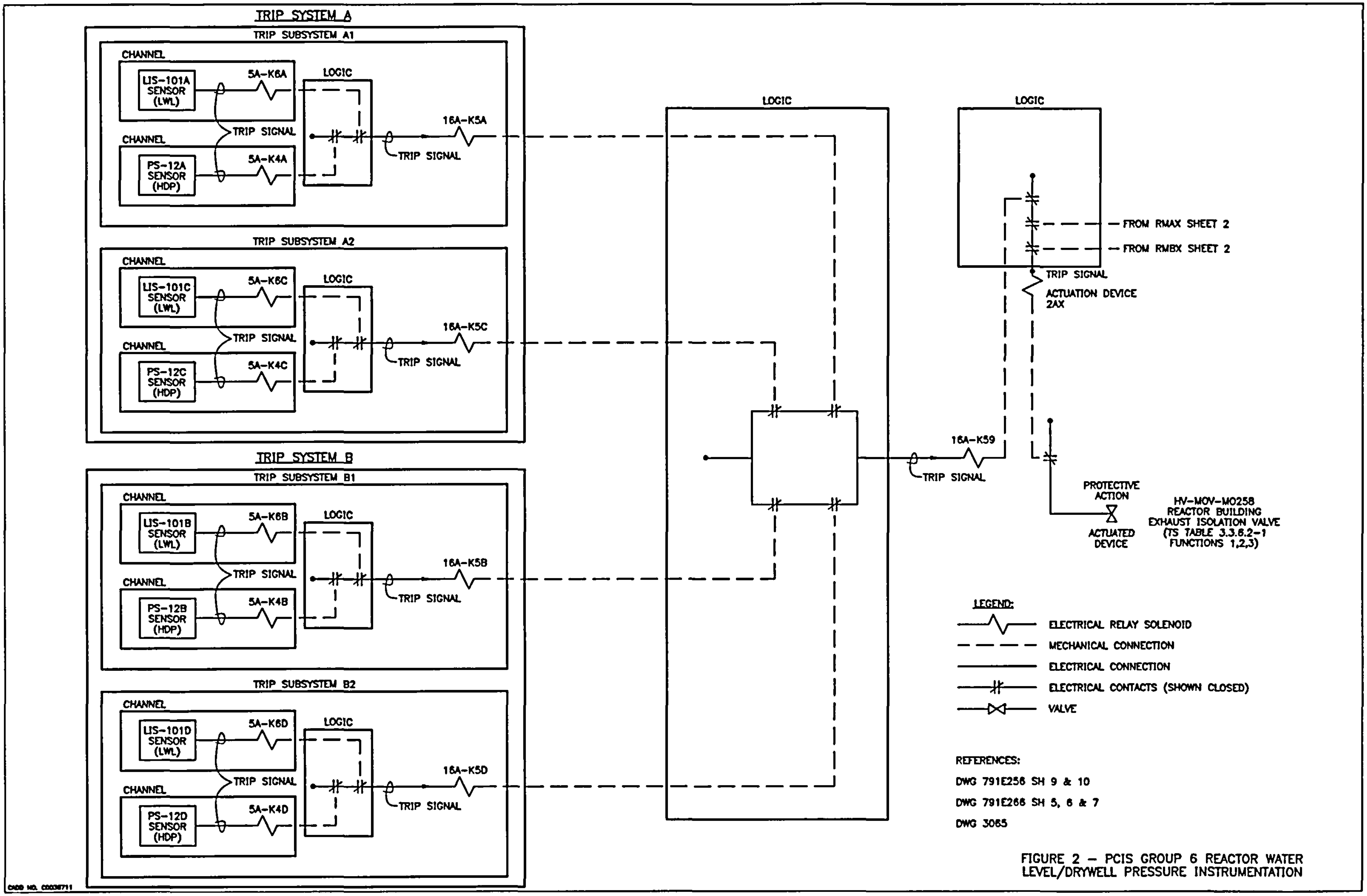
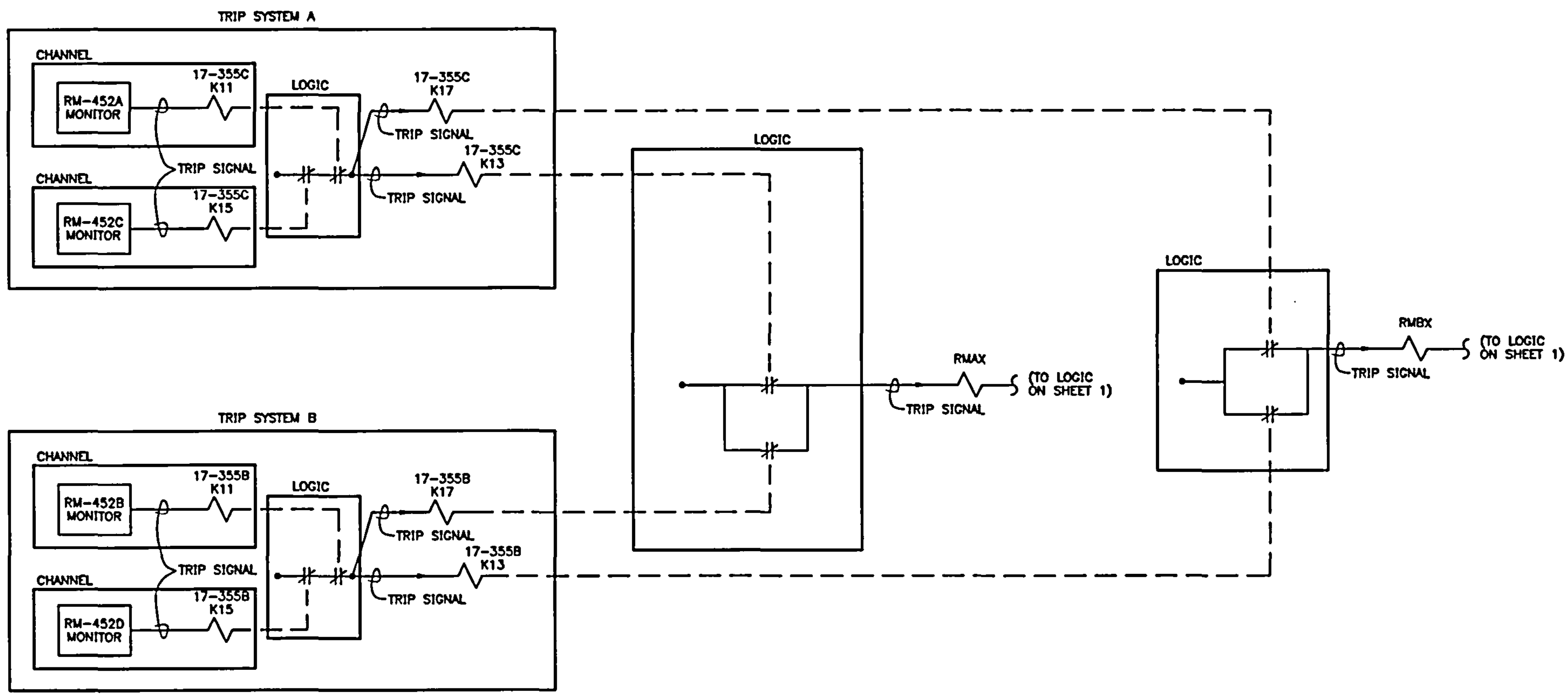


FIGURE 2 – PCIS GROUP 6 REACTOR WATER LEVEL/DRYWELL PRESSURE INSTRUMENTATION



REFERENCES:

DWG 791E257 SH 6

DWG 3065

FIGURE 3 – PCIS GROUP 6 REACTOR BUILDING VENTILATION EXHAUST PLENUM RADIATION INSTRUMENTATION

ATTACHMENT 3	LIST OF REGULATORY COMMITMENTS©

Correspondence Number: NLS2004122

The following table identifies those actions committed to by Nebraska Public Power District (NPPD) in this document. Any other actions discussed in the submittal represent intended or planned actions by NPPD. They are described for information only and are not regulatory commitments. Please notify the Licensing & Regulatory Affairs Manager at Cooper Nuclear Station of any questions regarding this document or any associated regulatory commitments.

COMMITMENT	COMMITTED DATE OR OUTAGE
None	